

Final Draft Dewey-Burdock Communication Strategy

PREPARED BY: Douglas Minter

DATE PREPARED: September 16, 2019

TIMING: NLT 9/20/19 for Extension of Public Comment Period

ACTION: The EPA Region 8 Underground Injection Control (UIC) Program is re-proposing two draft UIC Area Permits to Powertech (USA) Inc. (Powertech) for injection activities related to uranium recovery in the Black Hills of South Dakota. One is a UIC Class III Area Permit for injection wells for the In-Situ Recovery (ISR) of uranium in the Inyan Kara Formation. The second is a UIC Class V Area Permit for deep injection wells that would be used to dispose of ISR process waste fluids, after treatment to ensure that the injected fluids are not radioactive or hazardous waste, into the Minnelusa Formation below the Inyan Kara. The EPA is also re-proposing an aquifer exemption approval in connection with the draft UIC Class III Area Permit. Specifically, this approval would exempt from protection under the Safe Drinking Water Act (SDWA), the uranium-bearing portions of the Inyan Kara Group aquifers. Such an exemption must be in place before ISR activities within these aquifers can occur.

COMMUNICATION GOALS: The goal during the public comment and hearing process is to gather public input (comments and concerns) regarding the proposed permits and exemption, and the specific measures within these permits for protecting groundwater. Given the amount of documentation EPA has prepared for permit re-issuance, EPA is providing the public 45 days to review and comment. Public hearings must be scheduled at least 30 days after the draft permits are issued for comment. See, 40 CFR §124.10(b)(2).

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BACKGROUND:

The EPA's UIC Program received permit applications from Powertech related to the ISR of uranium at the proposed Dewey-Burdock Site in South Dakota. This proposed site is located in the southern Black Hills in South Dakota on the South Dakota-Wyoming state line in southwest Custer and northwest Fall River Counties. The site is located approximately 13 miles northwest of Edgemont, SD and 46 miles west of the western border of the Pine Ridge Indian Reservation.

The EPA has proposed protective requirements in each of the two UIC area permits. These include treating Class V injection fluids to ensure that the injected fluids are not radioactive or hazardous waste, and monitoring underground sources of drinking water (USDWs) surrounding the Class III injection wellfields before, during, and after ISR operations to ensure the regulatory standards are met. They also include recordkeeping and reporting requirements. These proposed requirements are intended to ensure that these activities do not endanger USDWs, including the Madison Formation, which is a prolific aquifer in western South Dakota and serves as the source

for public drinking water systems. The Madison underlies the proposed injection zones for the draft Class III (i.e., Inyan Kara) and V (i.e., Minnelusa) area permits.

There are also additional protective permit requirements proposed in each UIC Area Permit that must be met and approved by EPA before the EPA would authorize operation of the injection wells, including:

1. Extensive evaluation and characterization of injection zone and confining zone hydrogeologic conditions for the Class III and deep Class V injection wells;
2. Protective construction and operating requirements for injection wells; and
3. Demonstration that extensive monitoring programs are in place for the Class III wells to detect any threat to USDWs so that Powertech implements required mitigation measures before USDWs are impacted.

The project would involve the injection of lixiviant, consisting of injection interval groundwater with added oxygen and carbon dioxide, into the uranium ore deposits within the Inyan Kara Formation targeted by 14 wellfields. These wellfields would consist of an approximate total of 2,330 Class III injection wells. EPA is proposing to regulate these wells under a UIC area permit. Class III injection wells would be used for introducing the lixiviant into the uranium ore zones. The lixiviant would mobilize uranium from the ore deposits and allow production wells to pump the uranium-bearing lixiviant out of the ground to a processing unit where the uranium would be removed from solution using an ion exchange resin. The barren lixiviant would be pumped from the processing unit back to the ISR wellfield where oxygen and carbon dioxide would be added before injection back into uranium ore deposits through the Class III wells.

In addition to Powertech's permit application to inject fluids into the uranium deposits located within the Fall River and Chilson Sandstone aquifers of the Inyan Kara Formation, the company submitted a request to exempt these aquifers from protection as USDWs. As part of this action, EPA is proposing to exempt these aquifers. Specifically, these aquifers meet the definition of USDWs in the UIC regulations because their total dissolved solids concentrations are less than 10,000 mg/L and yield a sufficient quantity of water to supply a public water system. EPA is proposing to exempt the uranium-bearing portions of these aquifers under the UIC regulatory exemption process based on information included in Powertech's application demonstrating that these aquifers currently do not serve as a source of drinking water and would not serve as a future source of drinking water because minerals occur in economically producible quantities within such aquifers.

The EPA requested public comment on these permit actions in March 2017. After reviewing the comments received in 2017 and modifying the draft permits in response, EPA is requesting additional public input on these actions. At the close of the public comment period, the EPA will review and consider all comments received during both the 2017 and 2019 public comment periods and during all the public hearings before making its final permit decisions. The EPA will also prepare a response to all the comments received. For more information visit: EPA Region 8 UIC Program website: [[HYPERLINK "https://www.epa.gov/uic/uic-epa-region-8"](https://www.epa.gov/uic/uic-epa-region-8)]

KEY MESSAGES:

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Following careful consideration of public comments received in response to issuing draft permits and an aquifer exemption in connection with Powertech's application for In-Situ Recovery of uranium in the Black Hills of South Dakota in 2017, the EPA has made a number of changes to these permits and the exemption that warrant additional public comment before making its final decisions. EPA has also prepared a Summary document identifying these changes to assist the public in reviewing them during the comment period.

Based on the initial public response requesting additional time to review EPA's draft UIC permits re-issued on August 26, 2019, EPA is extending the time period for requesting public comment an additional 60 days to December 9, 2019.

EPA has also prepared a Summary document identifying the major changes it made to the 2017 draft permit documents in response to the comments it has received. This will help the public in reviewing these changes during the comment period for the updated draft permit documents.

The permit and exemption requirements have been modified in response to the comments we received to ensure protection of underground sources of drinking water.

EPA is seeking public comment on its proposed decisions. All external stakeholders and tribes will have until December 9, 2019 to comment on these draft permits and proposed aquifer exemption in accordance with UIC program regulations.

The EPA's goal is to ensure that compliance with permit requirements will protect USDWs where in-situ recovery (i.e., Class III) or injection of ISR-related waste fluids (i.e., Class V) is occurring.

Unless new information is presented during the public comment period to the contrary, the record supports an EPA determination that EPA's draft permit requirements would protect USDWs.

The EPA has proposed protective permit requirements in each UIC Area Permit which would authorize the present and future operation of multiple injection wells within the proposed project area. These include treatment of the Class V injection fluids to ensure that the injected fluids are not radioactive or hazardous waste, and monitoring of the USDWs surrounding the Class III injection wellfields before, during, and after ISR operations to ensure that regulatory standards are met. They also include recordkeeping and reporting requirements. These proposed requirements would ensure that USDWs at the project site are protected, including the Madison Formation, which is a prolific aquifer in western South Dakota and serves as the source for public drinking water systems.

The EPA's primary role in the proposed Dewey Burdock Uranium Recovery Site is to evaluate and approve or disapprove Powertech's injection well permit applications and aquifer exemption request. The permit decisions will be based on whether all regulatory requirements have been met to ensure USDWs are protected through implementation and enforcement of the permit conditions. The aquifer exemption decision will be based on whether it can be demonstrated that

the uranium-bearing aquifers do not serve as a current source of drinking water and would not serve as a future source of drinking water because minerals occur in economically producible quantities within such aquifers. The documentation (“Fact Sheets”) accompanying each draft permit provides the technical basis for why EPA believes that USDWs can be protected during Class III and V well operations. The aquifer exemption draft Record of Decision details how the criteria for exemptions have been met.

The EPA must follow its regulatory requirements for decision making regarding injection well area permits, including consideration of public comments. EPA’s discretion to approve or deny a permit application is limited by the scope of these requirements. The EPA will, however, review and consider every comment submitted. The EPA’s decisions are made independent of other laws, policies, or issues related to uranium ISR operations.

Under its obligation to comply with the National Historic Preservation Act (NHPA) and under EPA’s Tribal Policy on Consultation and Coordination with Indian Tribes, EPA has been consulting and coordinating with interested Tribes to identify potential effects on traditional cultural places, historic and sacred sites, and mitigating requirements. These mitigating requirements would help ensure protection of places and sites identified both prior to, and after commencement of, ISR wellfield operations should EPA decide to issue these permits.

Since May 2013, EPA has periodically sent invitations to consult with 38 tribal nations who claim the Black Hills as a sacred area, a number of which claim treaty rights to this region. EPA’s most recent invitation was sent to these tribes in July 2019 notifying them of EPA’s pending re-issuance of these permits, and updated: 1) aquifer exemption Record of Decision; 2) Environmental Justice Analysis; and 3) document describing the EPA’s plan for compliance with Section 106 of the NHPA. To date, four tribal nations have responded requesting consultation: the Cheyenne and Arapaho Tribes (OK), Oglala Sioux Tribe (SD), the Cheyenne River Sioux Tribe (SD), and the Santee Sioux Nation (NE). EPA will continue to encourage interested tribes to consult and coordinate throughout its permitting process.

Activity Matrix for Public Outreach for Extension of Comment Period			
Activity	Who?	How?	When?
Distribute Final Communications Strategy within Region 8 and OGWDW	Douglas M	Email	NLT September 17th
Publish local media announcements of the public comment period/hearing (August 26 to December 9/October 5).	Adele L Douglas M	Newspapers, etc.	NLT September 26th
Post Public Notice and Administrative Record on Region 8's website: [HYPERLINK "https://www.epa.gov/uic/uic-epa-region-8"]	Omar S-Lopez	Website	NLT September 20th
Contact Powertech (John Mays, COO)	Darcy O	Telephone Call and Email w/ Summary of Changes	NLT September 20th
Contact SD DENR and NRC Counterparts	Deb T Valois R	Telephone Call and Email w/ Summary of Changes	NLT September 20th
Contact Consulting Tribal Nations (12) and follow up with Summary of Changes (see below).	Darcy O Douglas M	Email Tribal Chairs, Env. Dirs. and/or THPOs w/ Summary	NLT September 20th
Contact OST's legal counsel	Lucita C	Call Jeff Parsons	NLT September 20th
Contact Tribal Chairpersons (38 nations)	Darcy O	Email w/ Summary	NLT September 20th
Contact Tribal Environmental Directors and THPOs (38 nations)	Douglas M	Email w/ Summary	NLT September 20th
Contact external stakeholders on UIC program's mailing list (incl. commenters)	Valois R	Email w/ Summary	NLT September 20th
Issue Press Release (if needed)	Lisa M-V	Via Associated Press	NLT September 20th
Conduct Tribal Web Conferences upon request	Valois R	Webinar	August 26 th through December 9th
Respond to Media Inquiries as needed	Lisa M-V with UIC	Telephone, etc.	TBD
Conduct Public Hearing in Hot Springs, SD	DM/VR KH/LM-V	In Person Hearing	October 5th

AUDIENCES/INTERESTED GROUPS:

- Tribes in Regions 5, 6, 7 and 8
- South Dakota Governor
- South Dakota Department of Environment and Natural Resources
- South Dakota Department of Game, Fish & Parks
- National Park Service
- US Forest Service
- Nuclear Regulatory Commission
- Bureau of Land Management
- The Fall River County Commission
- The City of Hot Springs
- Western Mining Action Project
- Coloradoans Against Resource Destruction (CARD)
- Owe Aku-Bring Back the Way
- Defenders of the Black Hills
- Uranium Watch
- PowertechExposed
- Clean Water Alliance
- South Dakota Peace & Justice Center

RECOMMENDED OUTREACH ACTIVITIES

- Call and email to tribes and stakeholders
- Region 8 UIC Website
- Web conferences with interested tribes
- Fact Sheet for public – EPA Region 8 Class III and V Permitting Process
- Background Information
- Q/As
- WD Briefings
- RA Briefings
- Conference calls with DENR to coordinate on permitting requirements
- Conference calls with NRC to coordinate on NHPA 106 and permitting requirements
- Press Release
- Media Interviews
- Public Hearing

*Fact Sheet referenced here contains general information for the public (as opposed to “Fact Sheet” for UIC permits as described in 40 CFR Part 124).

GENERAL CONSIDERATIONS: (Summarize specific concerns, reactions, positions taken)

The Nuclear Regulatory Commission's (NRC) license and the South Dakota Department of Environment and Natural Resources' (DENR) large scale mining permit will regulate the greater ISR site including operation, aquifer restoration and site closure. DENR permits will also regulate water rights and any groundwater discharges that fall outside EPA's UIC regulatory jurisdiction.

The NRC and BLM staff shared the draft and final Supplemental Environmental Impact Statement (SEIS) for this proposed project with the EPA Region 8 NEPA program for review and comment. The Final SEIS was issued 01/29/14. The NRC entered into a Programmatic Agreement under the NHPA, Section 106 on 3/14/14 with the BLM, South Dakota State Historic Preservation Officer, the Advisory Council on Historic Preservation, and Powertech. On 04/08/14, the NRC issued its Final License. Following that, the Oglala Sioux Tribe (OST) and Powertech raised contentions before the Atomic Safety and Licensing Board (ASLB), and the OST filed a case before the D.C. Circuit Court. Most recently, this process is back at NRC where the staff concluded that on the issue of identification of traditional cultural properties, it would not be able to resolve its differences with the OST on what constitutes an adequate tribal survey of cultural sites in the proposed project area. An evidentiary hearing to address this impasse will be held by the ASLB on August 28-30, and the ASLB expects to issue an initial decision on November 29th.

Powertech's current design plans for some surface ponds proposed to hold ISR-related waste fluids do not include double liners and leak detection systems as required by the Clean Air Act requirements of 40 CFR 61 Subpart W. The UIC permits have taken this into consideration by proposing to withhold authorization to inject until all surface ponds are in compliance thereby ensuring protection of surficial USDWs.

In 2013, the non-profit Institute of Range and American Mustang (IRAM), owner of the Black Hills Wild Horse Sanctuary, requested an assessment of the abandoned open pit uranium mines, named Darrow/Freezeout/Triangle (DFT) Uranium Mine Site which is separate from, but in the vicinity of, the proposed Dewey-Burdock ISR Project. In response to the citizen's petition, EPA's Superfund program completed a preliminary assessment and concluded that further assessment was necessary. EPA then conducted a site inspection (SI) in September 2015 to evaluate potential impacts to sensitive environments and fisheries. The SI report was completed in March 2016. The EPA Site Assessment Program made a decision of no further remedial action planned (NFRAP) based on this report.

The South Dakota DENR has halted the public hearing process for its large scale mine permit, the groundwater discharge permit and the water rights allocation decisions for the two impacted aquifers until the NRC and the EPA have "ruled and set federal surety."

EXTERNAL CONSIDERATIONS:

- Open communication with Tribes to address sacred and cultural sites.
- Open communication with Tribes and other interested parties about environmental concerns.
- Maintain confidentiality of identified sacred and cultural sites as needed.

- Coordination with NRC and BLM on NEPA Process. *(EPA's involvement in the NEPA process is completed.)*
- Coordination with NRC and BLM on NHPA 106 process.
- Coordination with SD DENR on permit development.

INTERNAL CONSIDERATIONS:

- Anticipate receiving an application from Powertech for approval of construction of ponds, and to review and make a final determination regarding approval or intent to deny approval of evaporation ponds under the Air Program NESHAPS Subpart W.
- Coordinate with the EPA Region 8 NEPA program on the review of the NRC Supplemental EIS. *(Note: the NEPA process is now completed)*
- May receive documentation from Powertech showing that private well #16 has been plugged or re-classified as a monitoring well which will inform EPA's decision on the geographic scope of its proposed aquifer exemption approval.

QUESTIONS AND ANSWERS:

GENERAL

Why is EPA re-issuing these draft permits?

When EPA receives a permit application for underground injection, the EPA is required under UIC Program regulations to evaluate and approve or disapprove the application, as is the case for the proposed Dewey Burdock Uranium Recovery Site injection well permit applications. Our objective when reviewing these applications is to determine whether injection activity can occur without endangering underground sources of drinking water. After considering all public comments received in response issuing Class III and V draft permits in 2017, EPA has made a number of changes to these permits that warrant additional public comment before making its final permit decisions.

What are the permit changes EPA made to its draft UIC permits issued in 2017?

In summary, the Class III Area Permit requires the Permittee to develop a Wellfield Closure Plan that is based on the Conceptual Site Model and geochemical modeling to evaluate the potential for ISR contaminants to cross the aquifer exemption boundary into the surrounding USDWs. The Class III Area Permit includes requirements to calibrate the geochemical model for each wellfield based on site-specific sampling and analysis of the geochemical and water quality information acquired according to the specifications in the Conceptual Site Model. The Conceptual Site Model includes monitoring requirements that are tied to the timing of groundwater restoration. The Wellfield Closure Plan must demonstrate that the wellfield closure, including plugging and abandonments of all wellfield injection and production wells, will result in adequate protection of USDWs as required under 40 CFR § 146.10(a)(4). The EPA will determine whether the Closure Plan provides adequate protection based on site specific information, such as the nature and concentration of any residuals, the hydrogeology of the

aquifer, the economic and technical feasibility of cleanup actions, the proximity of water wells, and the number of people relying on the USDW down-gradient from the mining site. If the Closure Plan does not demonstrate adequate protection of USDWs, EPA will prescribe aquifer cleanup and monitoring where it deems it necessary and feasible to ensure adequate protection of USDWs.

EPA is also proposing revised requirements in the Class V permit including for surface casing depths, and open-hole and cased-hole sampling and analysis. The technical basis for proposed changes to both permits are explained in EPA's updated Fact Sheets which is also part of the administrative record available for review and comment.

What is EPA doing to ensure protection of USDWs if EPA approves these permits?

EPA's draft UIC permits specify requirements for injection wells used for in-situ recovery (ISR) of uranium, and underground disposal of fluid ISR-related wastes through these wells. These requirements include aquifer pump testing and well logging to ensure adequate geologic confinement of injected fluids, injection well construction, operation, and plugging and abandonment, periodic testing of well mechanical integrity, monitoring of ground water in and around ISR well fields, and assuring adequate resources are procured from Powertech to properly plug and abandon injection wells. For Class III wells, these proposed requirements are meant to ensure protection of USDWs above and below where the uranium is being recovered, as well as downgradient of the aquifers containing the uranium ore. For Class V disposal of ISR wastes, these proposed requirements are meant to ensure protection of USDWs located above and below the injection zone.

Hasn't EPA already made up its mind on issuance of the permits and approval of the aquifer exemption?

No. The EPA reviewed a substantial amount of information and used its best technical judgment in drafting these proposed decisions. However, it is always possible for commenters to identify information that may not have been considered or needs further consideration. Therefore, comments can affect final permit conditions and the final permit decisions.

What are the other EPA programs or State and Federal agencies involved?

- The EPA Region 8 UIC Program is charged under the Safe Drinking Water Act with protecting USDWs from endangerment resulting from emplacement of fluid into the subsurface through injection wells.
- The EPA Region 8 Air Program would review Powertech's application for construction of evaporation ponds for compliance with 40 CFR 61 subpart W.
- The EPA Superfund Program conducted a Site Inspection of the abandoned uranium mines located in the vicinity of the Dewey-Burdock project site which resulted in a decision to take no further action.
- The Region 8 UIC Program permitting process involves implementation of the NHPA Section 106 review process, including tribal consultation, and consultation and coordination under the EPA's Tribal Consultation Policy.

- The Nuclear Regulatory Commission (NRC) is the primary federal regulatory agency for the proposed Dewey Burdock uranium ISR project. The EPA may designate the NRC as lead for the NHPA Section 106 process or conduct Tribal Section 106 Consultation independently.
- EPA is coordinating with State & Federal Permitting Agencies during UIC permit development.
- The South Dakota Department of Environment and Natural Resources is responsible for issuance of water rights, groundwater discharge, and large-scale mining permits for the proposed Dewey Burdock uranium ISR project.
- The EPA NEPA Program has reviewed and commented on the NRC's SEIS to help ensure that environmental impacts and appropriate mitigation measures have been identified.

REGULATORY TERMS

What is the definition of a USDW?

An underground source of drinking water (USDW) is an aquifer or a part of an aquifer that is currently used as a drinking water source. A USDW may also be ground water needed as a drinking water source in the future. A USDW is defined in the Code of Federal Regulations (40 CFR 144.3) as an aquifer or its portion: (a)(1) Which supplies any public water system; or (2) Which contains a sufficient quantity of ground water to supply a public water system; and (i) Currently supplies drinking water for human consumption; or (ii) Contains fewer than 10,000 mg/l total dissolved solids; and (b) Which is not an exempted aquifer.

What is an “aquifer exemption” and why is it needed for uranium ISR activity to occur?

The UIC program is a preventative program that prohibits any injection activity into the subsurface without a permit or rule authorization. For Class I, II and III wells, movement of any contaminant into a USDW is prohibited. See 40 CFR § 144.12. Therefore, in order to be able to inject via a Class III well, a receiving aquifer must be a non-USDW. If it meets the definition of a USDW, then it must be exempted from the definition of USDW for injection to occur. The uranium ore Powertech is proposing to recover is located within aquifers that meet the definition of a USDW. Powertech has requested, and EPA is proposing, to exempt these aquifers.

If the aquifers are good enough quality to serve as a drinking water source, why would EPA exempt them from protection?

EPA's UIC regulations provide that aquifers meeting the definition of a USDW may be exempted to enable the development and recovery of natural resources including minerals such as uranium. In this case, EPA has determined that its regulatory criteria have been met for exempting the uranium-bearing portions of the Inyan Kara aquifer. In proposing its determination, EPA also recognizes that these aquifers are likely not a viable source of drinking water due to relatively high naturally-occurring concentrations of radionuclides.

Why are the injection wells above USDWs not Class IV wells?

By regulatory definition, Class IV wells inject hazardous or radioactive waste into or above a USDW. The EPA's UIC regulations and the proposed permits for Class III or V injection prohibit this practice. In this case, the Class V injection wells used for disposal above USDWs would require treatment so that the injectate is no longer defined as "hazardous" or "radioactive." Class IV injection is only allowed when associated with Superfund or RCRA-regulated groundwater remedial actions.

REGULATORY REQUIREMENTS

What discretion does EPA have to approve or deny a UIC area permit application?

UIC area permit regulations allow EPA to issue a permit on an area basis, rather than for each well individually, if injection wells proposed for a larger area can be protective under one standard set of requirements. In order to be able to issue an area permit, EPA must find that an application meets all UIC regulation requirements, including those applicable to area permits. The area permit regulations include a requirement that EPA consider the cumulative effects of injection well operations on the environment and find them to be acceptable. For this proposed project, EPA is proposing that all Class III and V wells can be effectively regulated through its area permits and that any associated cumulative effects have been considered and found to be acceptable if Powertech implements the applicable proposed prevention, mitigation, remediation, reclamation or restoration procedures identified in EPA's Draft *Cumulative Effect Analysis* for each type of impact identified. If Powertech does not implement these procedures and the result is that environmental concerns resulting from these impacts are no longer acceptable, the UIC Director may decide to modify the Class III and V Area Permits according to 40 CFR § 144.39 and § 124.5.

Why did Powertech subsequently withdraw its original request in its Class V area permit application for ISR waste disposal into the Deadwood Formation?

As part of its review of Powertech's Class V area permit application, EPA informed Powertech that any proposed injection below all USDWs must be permitted as Class I injection per EPA's UIC regulatory definitions for injection well classes. More specifically, while Powertech proposed to dispose of ISR-related wastes into the Deadwood Formation in its Class V permit application, this formation underlies all USDWs and therefore must be classified and permitted as a Class I injection well. In light of South Dakota's prohibition of Class I injection, Powertech asked that its request for injection into the Deadwood be withdrawn.

On what basis could EPA disapprove UIC permit issuance?

In order for EPA to disapprove a UIC area permit application, EPA would have to conclude that the regulatory criteria have not been met. The criteria for area permits can be found at 40 CFR section 144.33. The criteria for each class of well can be found at 40 CFR part 146. For example, the EPA has denied some applications because the geology in which the injection well is proposed to operate was not sufficiently protective to ensure that injected fluids could be sufficiently confined to prevent migration of these fluids into USDWs. See 40 CFR § 146.32.

On what basis could EPA deny the associated Class III aquifer exemption?

The criteria for approval of aquifer exemptions can be found at 40 CFR section 146.4. EPA may approve an aquifer exemption if an applicant demonstrates that an aquifer or portion of an aquifer meets the exemption criteria. For purposes of the aquifer exemption associated with the Class III permit, the applicant based its demonstration on the following criteria: (a) it does not currently serve as a source of drinking water; and (b) it cannot now and would not in the future serve as a source of drinking water because it is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant, as part of a permit application for a Class II or III operation, to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible. The issuance of aquifer exemptions is discretionary. In the preamble to the EPA's 1984 rule, EPA stated that "[i]f an aquifer is not currently being used for drinking water, and meets one of the specified criteria, EPA may exempt the aquifer. The use of the word "may" reserves to the Agency the discretion to decline to exempt an aquifer, even if it meets one of the criteria, if the Agency believes that other considerations warrant maintaining the USDW classification." 49 Fed. Reg. 20138 at 20141-142 (May 11, 1984).

Would EPA be monitoring Powertech's field activities to ensure it is complying with its permit?

Powertech would be required to comply with its UIC permit requirements at all times. Enforcement of UIC permits relies primarily on the permittee self-reporting to the EPA. However, EPA does periodically conduct field inspections of regulated injection wells to ensure compliance with these requirements. Such inspections can cover several field activities including aquifer pump testing to ensure confinement of Class III injected fluids, mechanical integrity testing of Class III and V wells, and sampling of wells monitoring the USDWs surrounding the Class III well fields.

If EPA does issue a final permit for this activity, does that mean Powertech would be allowed to immediately begin mining operations through Class III injection?

No. Powertech would be required to conduct extensive testing and gather additional data upon final permit issuance for each of 14 well fields before EPA would authorize any injection. If Powertech cannot demonstrate that a well field can operate in a manner protective of USDWs, EPA would not authorize injection for that well field.

How would EPA ensure that contaminants liberated during the uranium ISR process do not escape from the mining zone and into nearby USDWs?

EPA's proposed requirements include extensive monitoring of USDWs above and below the mining zone to detect the movement of such contaminants. Such detection must be reported to EPA by Powertech and would be a violation of the permit and require corrective action before any injection could continue. These requirements also include monitoring at the edge of the mining zone to detect and hydraulically retrieve contaminants before they migrate into nearby USDWs outside of the portion of the aquifer exempted for ISR.

How would EPA ensure that local/downgradient USDWs be protected after Class III ISR operations cease?

The Class III Area Permit requires the Permittee to develop a Wellfield Closure Plan that is based on the Conceptual Site Model and geochemical modeling. The purpose of the geochemical modeling is to evaluate the potential for ISR contaminants to cross the aquifer exemption boundary into the surrounding USDWs. The Class III Area Permit includes requirements to calibrate the geochemical model for each wellfield based on site-specific sampling and analysis of the geochemical and water quality information acquired according to the specifications in the Conceptual Site Model. The Conceptual Site Model includes monitoring requirements that are tied to the timing of groundwater restoration and stability monitoring phases. The Wellfield Closure Plan must demonstrate that the wellfield closure, including plugging and abandonments of all wellfield injection and production wells, will result in adequate protection of USDWs as required under 40 CFR § 146.10(a)(4). The EPA will determine whether the Closure Plan provides adequate protection based on site specific information, such as the nature and concentration of any residuals, the hydrogeology of the aquifer, the economic and technical feasibility of cleanup actions, the proximity of water wells, and the number of people relying on the USDW down-gradient from the mining site. If the Closure Plan does not demonstrate adequate protection of USDWs, EPA will prescribe aquifer cleanup and monitoring where it deems it necessary and feasible to ensure adequate protection of USDWs.

What is the regulatory basis for EPA proposing to exempt these uranium-bearing aquifers for ISR activities?

Pursuant to 40 CFR § 146.4, EPA has found that these aquifers: 1) do not currently serve as a source of drinking water because there are no existing drinking water wells that would draw from portions of aquifers proposed for exemption; and 2) cannot now and would not serve as a source of drinking water in the future because they are mineral producing, or can be demonstrated by a permit applicant as part of a permit application for a Class III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible.

What is the water quality in/around the aquifers where ISR activities are proposed to occur and how did the EPA consider this information in proposing Class III permit requirements and the aquifer exemption?

The total dissolved solids (TDS) of these aquifers is between 774 and 2,250 milligrams/litre (mg/l) with a mean value of 1,275 mg/l. Generally, water with a TDS concentration in excess of 1,200 mg/l is considered unpotable without treatment. The relatively high sulfate, iron and manganese concentrations that are part of the TDS of these aquifers would typically cause a well owner to use reverse osmosis to treat the water to make it potable. Radium, gross alpha and radon concentrations occurring above levels EPA considers safe to drink in wells completed in the uranium ore zones have been a primary reason why some private wells completed into these aquifers have been abandoned or are only used for non-drinking water purposes. The areas delineated for the proposed aquifer exemption are confined to the uranium-bearing, and generally more naturally contaminated, portions of these aquifers. EPA's proposed Class III

permit requirements are intended to ensure that the portion of these aquifers outside these proposed exempted areas will continue to be protected for current and potential future drinking water use. These include private wells completed into these non-exempted aquifers and any public or private wells that may be completed into these non-exempted aquifers in the future.

Could the historic bore holes from past uranium exploration serve as a conduit for contaminants to migrate into nearby USDWs at the project site?

Possibly. If such boreholes pose a potential risk in a particular well field, Powertech would be required to take corrective action to ensure that ISR-related contaminants are adequately confined and hydraulically controlled within the mining zone. If such correction action did not adequately address this risk, EPA would not authorize injection for that particular well field.

How would EPA ensure that all injection wells are constructed adequately so that they do not become conduits for contamination of USDWs?

EPA's proposed permits would require that Powertech test the "mechanical integrity" of each well that is or may in the future be used for injection. This testing must be done before each well is initially authorized to inject, and at least once every five years thereafter or sooner if a well is being repaired. EPA would also review the downhole logs of each well to ensure that the well meets casing and cementing requirements and is protective of USDWs.

When would EPA require Powertech to secure financial assurance to cover the cost of plugging all its injection wells?

EPA would require Powertech to secure the financial resources necessary to plug and properly abandon its injection wells prior to the issuance of final UIC permits. For the Class III permit, Powertech must adequately demonstrate to EPA that such resources are available to properly plug all wells in the first wellfield it plans to construct and operate. For the Class V Permit, Powertech must adequately demonstrate to EPA that such resources are available to properly plug the first two Class V ISR waste disposal wells it plans to construct and operate in the Dewey and Burdock Units respectively. Prior to granting authorization to construct and operate additional Class III wellfields or Class V disposal wells under these area permits, Powertech must provide additional adequate financial assurance to EPA.

How would EPA determine that sufficient resources are secured in the event Powertech is unable to adequately plug all of its injection wells?

There are financial assurance requirements in the UIC permits. EPA would require that Powertech provide an estimate of the actual cost of plugging all injection wells by a third-party contractor. However, EPA has the discretion to determine these costs independent of Powertech's estimate. Either way, EPA can require the level of financial assurance it believes is necessary, and it would be a violation of the permit if Powertech commences construction of any injection wells before such assurance in place.

What are the permit requirements for addressing emergencies related to noncompliance?

Both draft Class III and V UIC Area Permits require Powertech to report any noncompliance to EPA that may endanger human health or the environment within 24 hours. Powertech must also provide a follow up written report to EPA within five days of discovering such noncompliance describing the noncompliance, its cause and duration, and if not corrected, the anticipated time the noncompliance is expected to continue and the steps taken or planned to reduce, eliminate, and prevent recurrence. Copies of these reports would be released to the public on the EPA Region 8 UIC website.

What regulations apply and what permits are needed to address air quality requirements?

Based on the information EPA reviewed, no air quality permits will be required due to the small emission estimates from stationary sources. Air quality impacts were assessed in the NRC's SEIS and although some impacts were identified, these impacts should be avoidable or minimized by effective implementation of mitigation measures required in the FEIS/ROD. These measures are intended to minimize fugitive dust and diesel exhaust emissions from drill rig engines used to develop the wellfields.

Are there EPA requirements that would apply to the surface ponds proposed to hold ISR-related waste fluids?

Yes, if surface ponds are constructed based on Powertech's current design plans for holding ISR-related waste fluids. Specifically, these plans do not include double liners and leak detection systems as required by the Clean Air Act requirements of 40 CFR 61 Subpart W. The UIC permits have taken this into consideration by proposing to withhold authorization to inject until all surface ponds subject to these requirements are in compliance thereby ensuring protection of surficial USDWs.

POTENTIAL IMPACTS

What would the construction and operation of Class III injection wells do to the area groundwater and how would USDWs be protected?

By introducing water, oxygen and carbon dioxide as a "lixiviant" into the uranium-bearing aquifers proposed for exemption, the uranium becomes soluble and can be recovered to the surface through extraction wells. This process alters the geochemistry of these aquifers which can liberate a number of potential contaminants including other radionuclides. Regulatory controls (e.g., downgradient monitoring within the exempted aquifer) in EPA's draft Class III permit would be designed to detect migration of, and hydraulically retrieve if necessary, these contaminants before they reach nearby USDWs.

What would construction and operation of injection wells do to the area drinking water?

EPA's proposed permit requirements are intended to ensure that all private and public drinking water sources in and around the proposed project site are protected from the operation of injection wells. As a preventive program, this means that testing and monitoring requirements

are designed to detect and address the release of contaminants before such contaminants impact drinking water sources.

How would fugitive dust from construction and operation of injection wells affect the air quality?

EPA's UIC proposed permit requirements do not directly address air emissions at the proposed project site. However, UIC regulations require that EPA analyze the cumulative effects related to its proposed UIC Area Permits. Accordingly, EPA has prepared a cumulative effects analysis which is available as part of its administrative record. This analysis finds the potential air quality impacts from fugitive dust emissions would be acceptable if the UIC Area Permits were issued. More specifically, air quality in and surrounding the project area may be affected by fugitive dust emissions from construction and development of the wellfields. Measures required by the NRC are intended to minimize fugitive dust.

Would there be any impacts to surface water (e.g., Cheyenne River)?

After reviewing the surficial groundwater flow and other potential pathways for ISR-related contaminant transport to the Cheyenne River which is south of the proposed project, EPA proposes to conclude that it is very unlikely that this river would be impacted by injection well operations. Furthermore, EPA's Superfund program found that the elevated uranium levels recently reported in the Angostura Reservoir within the Cheyenne River watershed 30 miles downstream from Edgemont, South Dakota were comparable to background levels and did not pose a health or ecological risk.

What risk do the uranium ISR fluid disposal wells pose for inducing seismic activity?

EPA has studied the potential for "induced seismicity" from deep well disposal of these fluids at this project site and proposes to conclude that the risk of inducing seismic activity is minimal. However, for any seismic event reported by the USGS Earthquake Hazards Program within two miles of the Class V area permit boundary, Powertech would be required to immediately cease injection and report to EPA within 24 hours. Injection could not resume until Powertech obtained approval from EPA. The EPA could require that any subsequent injection activity (e.g., injection pressures and volumes) be reduced. EPA could also modify the Class V permit to add ongoing seismic monitoring and other requirements. For any seismic event occurring between two and fifty miles of the Class V area permit boundary, that event would be recorded and reported by Powertech to EPA on a quarterly basis.

How is EPA considering the potential cumulative effects from this proposed project?

Pursuant to 40 CFR § 144.33, EPA has considered the cumulative effects of drilling and operation of additional injection wells and has documented it in a cumulative effects analysis. This analysis proposes to conclude that such effects are "acceptable" to EPA consistent with UIC regulations if Powertech implements the proposed prevention, mitigation, remediation, reclamation or restoration procedures identified for each type of impact discussed. If Powertech does not implement these procedures and the result is that environmental concerns resulting from

the impact are no longer acceptable, the Director may decide to modify the Class III and V Area Permits according to 40 CFR § 144.39 and § 124.5.

Why did EPA choose to include non-groundwater related effects in its cumulative effects analysis for UIC area permits?

EPA exercised its discretion to do so in this case given the high level of tribal and public concern related to these proposed UIC permit actions. In addition, these draft area permits are the first EPA has issued for uranium recovery operations involving injection wells. The EPA was able to identify and analyze these effects based on extensive documentation that was available (e.g., NRC's SEIS).

How would EPA ensure that any potential impacts on federally-listed endangered species or their habitat from this proposed project would be adequately addressed?

EPA has an obligation under the Endangered Species Act (ESA) section 7 to ensure that our actions are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. EPA prepared a Biological Assessment (BA) of potential impacts and submitted it to the U.S. Fish and Wildlife Service (USF&WS). The USF&WS subsequently reviewed and concurred on EPA's findings in its BA that issuance of Class III and V permits may affect, but is not likely to adversely affect, three listed species or their habitat known to occur in or near the proposed Dewey Burdock project area: the Whooping Crane, Rufa Red Knot, and the Northern Long-eared Bat. EPA has included measures in these permits to ensure that such potential impacts will be avoided, minimize, or mitigated. The EPA's documentation, including USF&WS concurrence, is included as part of its administrative record for public review.

How would wastewater be conveyed from production to disposal wells? What do the proposed permits require that would reduce the likelihood of spills of contaminated wastewater?

All ISR production fluids would be conveyed through pipelines to a surface processing unit and then to surface ponds for treatment to meet hazardous waste and radioactive waste standards prior to Class V injection. All surface ponds subject to 40 CFR 61 subpart W must meet federal air regulatory requirements for design, installation, and monitoring to ensure that any groundwater under these ponds is adequately protected.

Has EPA considered how its proposed actions would contribute, or are related, to climate change?

Yes. EPA has included a section on climate change in its cumulative effects analysis.

TRIBAL/NHPA

What consultation activities has or would EPA conduct with interested Tribes before EPA makes its final permit decisions?

Consistent with EPA's *Policy on Consultation and Coordination with Indian Tribes* ([[HYPERLINK "http://www.epa.gov/tribal/consultation/consult-policy.htm"](http://www.epa.gov/tribal/consultation/consult-policy.htm)]), EPA contacted 38 different tribal nations in November, 2015, inviting them into consultation on this proposed project. Eight tribes responded to EPA's invitation to consult and EPA consulted with all but one in 2016 and 2017 (note: the exception was the Cheyenne River Sioux Tribe who has not able to agree to a specific consultation date). In July 2019, EPA contacted the same 38 tribal nations informing them of an additional opportunity to consult on the updated draft Class III and V permits, as well as an updated Environmental Justice Analysis and NHPA process document. Throughout its UIC permitting process, EPA will continue to coordinate with tribal officials to be responsive to their needs for information and to offer opportunities to provide, receive, and discuss input. Once EPA makes its final permit decision, we will follow up with all tribes that we consulted with to account for how their input was considered in our decisions.

Would EPA consider disapproval of the permits based solely on tribal objections regarding sacred lands?

Generally, EPA can only deny a permit application based on arguments that are specifically tied to the protection of USDWs. However, EPA must adhere to the requirements of the National Historic Preservation Act (NHPA) and other laws protecting cultural resources. Under the NHPA, federal agencies must consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by their undertakings. Agencies must ensure that this consultation is respectful of tribal sovereignty and must recognize the government-to-government relationship between the federal government and federally recognized Indian tribes. Informed by consultation and considering other relevant information, agencies must assess whether historic properties would be adversely affected by their undertakings. If adverse effects are identified, agencies consult with Indian tribes and others to avoid, minimize, or mitigate the adverse effects.

Is EPA considering agreeing to the terms of NRC's Programmatic Agreement and thereby assigning its NHPA compliance responsibilities to NRC?

If more than one agency is involved in an undertaking, some or all of the agencies may designate a lead federal agency to fulfill their collective NHPA consultation responsibilities. EPA is considering this approach. Whatever its final decision concerning the method for NHPA compliance, EPA would document how it intends to comply as part of its administrative record supporting its final decisions, if it decides to issue these permits.

Have any tribal nations raised treaty rights as an issue related to EPA's proposed actions?

The EPA has received public comments from multiple tribes asserting that EPA's draft UIC permits, if finalized, would adversely impact a variety of claimed treaty rights, including claims to ownership of the Black Hills, and that alleged contamination of water sources due to underground injection authorized by UIC permits would harm treaty rights on present-day Indian reservations and in the Black Hills (such as harm to reserved water rights, to hunting, fishing and plant gathering rights, and to historic, spiritual, cultural, and religious rights such as sweat lodges, etc.). Tribal consultation will continue throughout EPA's permitting process, and EPA

will continue to coordinate and consult tribes, including in accordance with the 2016 EPA Policy on Consultation and Coordination with Indian Tribes: Guidance for Discussing Tribal Treaty Rights.

PUBLIC PARTICIPATION/PROCESS

How do I access EPA's complete administrative record during the public comment period?

EPA has posted its administrative records for these proposed actions at the following website: [HYPERLINK "<https://www.epa.gov/uic/uic-epa-region-8>"]. You may also contact Valois Robinson with questions about these proposed actions by emailing her at robinson.valois@epa.gov

Where and when would EPA be holding any public hearings on these UIC draft permits and proposed aquifer exemption?

EPA announced the location, time, and date of its public hearing on its Region 8 UIC Program website at: <https://www.epa.gov/uic/uic-epa-region-8>. This information was also published in the following local newspapers and media sources starting the week of August 26, 2019: 1) Custer County Chronicle in Custer, South Dakota; 2) Lakota Country Times in Martin, South Dakota; 3) Rapid City Journal in Rapid City, South Dakota; 4) Fall River County Herald in Edgemont, South Dakota; and 5) Indianz.com website.

Why isn't EPA holding any public hearings on Indian reservations closest to the project site?

The EPA consulted with interested tribes on a number of topics, including conducting public outreach sessions and public hearings on reservations. Those discussions helped inform the location that the EPA selected for the upcoming hearing.

How will the public hearing be conducted and can I expect a response to comments I provide EPA?

An EPA presiding officer will run the hearing. At the beginning of the hearing, the presiding officer will ask those wanting to provide verbal and/or written comments to come forward in an orderly fashion. A court reporter will be present to capture all comments as part of the official administrative record. Generally, questions posed to EPA during the public hearing will not be responded to during the hearing itself. However, all comments will be responded to in writing when EPA makes its final UIC permitting and aquifer exemption decisions. The hearing is primarily for EPA to listen to the public's concerns and comments, and in particular to receive any information that could directly inform EPA's decisions.

What if I have or want to submit comments and cannot attend one of these public hearings? What is EPA's deadline for submitting comments?

Anyone can provide written comments during the public comment period by submitting them online at [regulations.gov](https://www.regulations.gov) under docket number **EPA-R08-OW-2019-0512**. Comments may also be sent by mail to Valois Robinson, U.S. EPA Region 8, Mail Code: 8WD-SDU, 1595 Wynkoop Street, Denver, CO 80202-1129. For public comments to be included as part of the official administrative record, they must be received by EPA no later than December 9, 2019.

Will EPA consider all public comments received including those submitted in response to its issuance of draft Class III and V permits in 2017?

Yes, EPA will consider all comments received during the current public comment period as well as the comment period that ran from March 6th through June 19th 2017.

What recourse do commenters have if they believe EPA has not adequately addressed their comments once EPA has issued its final permit decisions?

Commenters have a right to appeal EPA's permitting decisions by petitioning the Environmental Appeals Board (EAB). However, commenters must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position during the comment period. 40 CFR § 124.13. An EAB petition for review must identify the contested permit condition or other specific challenge to the permit decision and clearly set forth, with legal and factual support, petitioner's contentions for why the permit decision should be reviewed. The petition must demonstrate that each challenge to the permit decision is based on (A) A finding of fact or conclusion of law that is clearly erroneous, or (B) An exercise of discretion or an important policy consideration that the EAB should, in its discretion, review. See 40 CFR § 124.19(a)(4).

Should EPA decide to issue final permits for this proposed project, would EPA consider holding an additional public comment period prior to authorizing injection related to uranium ISR activities?

EPA is not required to provide additional opportunities for public comment once it makes its final permit decisions. However, EPA has the discretion to schedule additional opportunities for public comment. Any decision on whether to do so would be made at a later time.